



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,950	12/27/2001	Seiji Yaegashi	33035M084	7336

7590 05/30/2003  
SMITH, GAMBRELL & RUSSELL, LLP  
SUITE 800  
1850 M STREET, N.W.  
WASHINGTON, DC 20036

EXAMINER

BROCK II, PAUL E

ART UNIT	PAPER NUMBER
----------	--------------

2815

DATE MAILED: 05/30/2003

10

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/026,950

Applicant(s)

YAEGASHI ET AL.

Examiner

Paul E Brock II

Art Unit

2815

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 3 and 13-20 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1,2,4-6,8 and 10 is/are allowed.
- 6) ☒ Claim(s) 7,9,11 and 12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election without traverse of Species I, claims 1, 2, and 4 – 12 in Paper No. 9 is acknowledged.
2. Claims 3, 13, and 14 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 9.
3. Claims 15 – 20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Group, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 7.

### *Claim Objections*

4. Claim 12 is objected to because of the following informalities: "an side" in the 13<sup>th</sup> line of the claim 12 should be --a side--. Appropriate correction is required.

*Claim Rejections - 35 USC § 112*

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 7, 9, and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. With regard to claim 7, it is not clear if “a pattern,” defined in the third line of the claim, is the same “a pattern” defined in claim 1. Are there two patterns being claimed? For purposes of this office action the “said mask layer has a pattern with” in claim 7 will be considered --said pattern has--.

8. Claim 9 recites the limitation "said etching mask" in the second line of the claim. There is insufficient antecedent basis for this limitation in the claim. For purposes of this office action “said etching mask” will be considered --said mask layer--.

9. Claim 11 recites the limitation "said III-V compound semiconductor" in sixth line of the claim. There is insufficient antecedent basis for this limitation in the claim. For purposes of this office action “said III-V compound semiconductor” will be considered --said compound semiconductor--.

Art Unit: 2815

10. Further, in claim 11, it is not clear if “a base” defined in the last line of the claim is the same base as defined in the eighth line of the claim. Are their two bases in the claim. For purposes of this office action “a base” in the last line of claim 11 will be considered --said base region--.

*Claim Rejections - 35 USC § 102*

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claim 12 is rejected under 35 U.S.C. 102(b) as being anticipated by Matsuoka et al. (USPAT 5614423, Matsuoka).

With regard to claim 12, Matsuoka discloses in figures 2 and 3a – 3e a method of making a heterojunction bipolar transistor. Matsuoka discloses in figure 2, figures 3a – 3e, and column 7, lines 21 – 34 forming on a compound semiconductor film (5) a mask layer (7) for forming an emitter mesa and forming an emitter mesa by wet-etching said compound semiconductor film by using said mask layer. Matsuoka discloses in figures 2 and 3a – 3e wherein said mask layer has a pattern for forming said emitter mesa. Matsuoka discloses in figures 2 and 3a – 3e wherein said pattern has a first pair of sides (figure 2, sides not labeled A or B) extending in a predetermined direction, a second pair of sides (A) extending in a direction intersecting said predetermined direction, and a mask portion (defined between A and B) extending from one side of said first

Art Unit: 2815

pair of sides. Matsuoka discloses in figures 2 and 3a – 3e wherein said mask portion has a side (B) extending in a direction of a line inclining toward said side of said first pair of sides.

*Allowable Subject Matter*

13. Claims 1, 2, 4 – 6, 8, and 10 are allowed.

14. Claims 7, 9, and 11 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

15. The following is a statement of reasons for the indication of allowable subject matter:  
The prior art of record does not disclose or suggest, either singularly or in combination, at least the claim limitation of “wherein said pattern is defined by a first area portion associated with a shape of said emitter mesa to be formed, and a plurality of second area portions; and wherein each of said second area portions has first and second sides meeting each other to form an acute angle therebetween.”

*Conclusion*

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Yamahata, Chang et al., and Koganei all disclose patterning an emitter layer.

Art Unit: 2815

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul E Brock II whose telephone number is (703)308-6236. The examiner can normally be reached on 8:30 AM-5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on (703)308-1690. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7722 for regular communications and (703)308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Paul E Brock II  
May 20, 2003



EDDIE LEE  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800